

In the Claims:

Please cancel claims 1-22 without prejudice and add new claims 23-66, as follows:

23. (Newly added) A gel electrophoresis system comprising:

AS
a separating electrophoresis gel comprising agarose; and

a gel buffer comprising an organic amine with a pKa near neutrality and titrated with an acid, said gel buffer having a pH between pH 5.5 and pH 7.5.

24. (Newly added) The system of claim 23, wherein said system is a continuous buffer system.

25. (Newly added) The system of claim 24, wherein said titrating acid is selected from the group consisting of hydrochloric acid, acetic acid, N-tris(hydroxymethyl)methylglycine, piperazine-N,N'-bis(2-ethanesulfonic acid), 3-(N-morpholino)-propanesulfonic acid, 2-(N-morpholino)-ethanesulfonic acid, N-(2-acetamido)-2-aminoethanesulfonic acid, 3-(N-morpholino)-2-hydroxypropanesulfonic acid, N-[tris(hydroxymethyl)methyl]-2-aminoethanesulfonic acid, N-(2-hydroxyethyl)-piperazine-N-(2-ethanesulfonic acid), N,N-bis(2-hydroxyethyl)-2-aminoethanesulfonic acid, and 3-(N-tris(hydroxymethyl)methylamino)-2-hydroxypropanesulfonic acid.

26. (Newly added) The system of claim 25, wherein said titrating acid is N-tris(hydroxymethyl)methylglycine.

27. (Newly added) The system of claim 25, wherein said titrating acid is 2-(N-morpholino)-ethanesulfonic acid.

28. (Newly added) The system of claim 25, wherein said titrating acid is piperazine-N,N'-bis(2-ethanesulfonic acid).

29. (Newly added) The system of claim 24, wherein said amine is bis(2-hydroxyethyl)iminotris(hydroxymethyl)methane.

30. (Newly added) The system of claim 24, wherein said gel buffer further comprises a denaturing agent.

31. (Newly added) The system of claim 30, wherein said denaturing agent is formamide.

32. (Newly added) The system of claim 30, wherein said denaturing agent is urea.

33. (Newly added) The system of claim 24, wherein said gel buffer further comprises ethylenediamine-tetraacetic acid.

34. (Newly added) The system of claim 24, wherein said system further comprises an anode buffer.

35. (Newly added) The system of claim 34, wherein said anode buffer comprises tris(hydroxymethyl) aminomethane.

36. (Newly added) The system of claim 34, wherein said anode buffer comprises hydrochloric acid.

37. (Newly added) The system of claim 24, wherein said system further comprises a cathode buffer.

38. (Newly added) The system of claim 37, wherein said cathode buffer comprises tris(hydroxymethyl) aminomethane.

39. (Newly added) The system of claim 37, wherein said cathode buffer comprises sodium hydroxide.

40. (Newly added) A separating electrophoresis gel comprising agarose and characterized by uniform saturation with a gel buffer, said gel buffer comprising an organic amine with a pKa near neutrality and titrated with an acid, said gel buffer having a pH between pH 5.5 and pH 7.5.

41. (Newly added) The electrophoresis gel of claim 40, wherein said titrating acid is selected from the group consisting of hydrochloric acid, acetic acid, N-tris(hydroxymethyl) methylglycine, piperazine-N,N'-bis(2-ethanesulfonic acid), 3-(N-morpholino)-propanesulfonic acid, 2-(N-morpholino)-ethanesulfonic acid, N-(2-acetamido)-2-aminoethanesulfonic acid, 3-(N-

morpholino)-2-hydroxypropanesulfonic acid, N-[tris(hydroxymethyl) methyl]-2-aminoethanesulfonic acid, N-(2-hydroxyethyl)-piperazine-N'-(2-ethanesulfonic acid), N,N-bis(2-hydroxyethyl)-2-aminoethanesulfonic acid, and 3-(N-tris-(hydroxymethyl)methylamino)-2-hydroxypropanesulfonic acid.

42. (Newly added) The electrophoresis gel of claim 41, wherein said titrating acid is N-tris(hydroxymethyl)methylglycine.

43. (Newly added) The electrophoresis gel of claim 41, wherein said titrating acid is 2-(N-morpholino)-ethanesulfonic acid.

44. (Newly added) The electrophoresis gel of claim 41, wherein said titrating acid is piperazine-N,N'-bis(2-ethanesulfonic acid).

45. (Newly added) The electrophoresis gel of claim 40, wherein said amine is bis(2-hydroxyethyl)iminotris(hydroxymethyl)methane.

46. (Newly added) The electrophoresis gel of claim 40, wherein said gel buffer further comprises a denaturing agent.

47. (Newly added) The electrophoresis gel of claim 46, wherein said denaturing agent is formamide.

48. (Newly added) The electrophoresis gel of claim 46, wherein said denaturing agent is urea.

49. (Newly added) The electrophoresis gel of claim 40, wherein said gel buffer further comprises ethylenediamine-tetraacetic acid.

50. (Newly added) A method for performing electrophoresis, the method comprising:

applying a potential difference across a separating electrophoresis gel comprising agarose, said electrophoresis gel further comprising a gel buffer that includes an organic amine with a pKa near neutrality and titrated with an acid, said gel buffer having a pH between pH 5.5 and pH 7.5.

51. (Newly added) The method of claim 50, further comprising the antecedent step of contacting said electrophoresis gel to a cathode buffer, wherein said gel buffer and said cathode buffer comprise the same acid.

52. (Newly added) The method of claim 51, wherein said acid is selected from the group consisting of hydrochloric acid, acetic acid, N-tris(hydroxymethyl)methylglycine, piperazine-N,N'-bis(2-ethanesulfonic acid), 3-(N-morpholino)-propanesulfonic acid, 2-(N-morpholino)-ethanesulfonic acid, N-(2-acetamido)-2-aminoethanesulfonic acid, 3-(N-morpholino)-2-hydroxypropanesulfonic acid, N-[tris(hydroxymethyl)methyl]-2-aminoethanesulfonic acid, N-(2-hydroxyethyl)-piperazine-N'-(2-ethanesulfonic acid), N,N-bis(2-hydroxyethyl)-2-aminoethanesulfonic acid, and 3-(N-tris-

(hydroxymethyl)methylamino)-2-hydroxypropanesulfonic acid.

53. (Newly added) The method of claim 52, wherein said acid is N-tris(hydroxymethyl)methylglycine.

54. (Newly added) The method of claim 52, wherein said acid is 2-(N-morpholino)-ethanesulfonic acid.

55. (Newly added) The method of claim 52, wherein said acid is piperazine-N,N'-bis(2-ethanesulfonic acid).

56. (Newly added) The method of claim 51, wherein said amine is bis(2-hydroxyethyl)iminotris(hydroxymethyl) methane.

57. (Newly added) The method of claim 51, wherein said gel buffer further comprises a denaturing agent.

58. (Newly added) The method of claim 57, wherein said denaturing agent is formamide.

59. (Newly added) The method of claim 57, wherein said denaturing agent is urea.

60. (Newly added) The method of claim 51, wherein said gel buffer further comprises ethylenediamine-tetraacetic acid.

REMARKS

Amendments to the specification

Applicants herein amend the specification to bring current the cross-reference to related applications.

Applicants further amend the specification to clarify chemical nomenclature. Support for the nomenclature amendments are set forth below.

The name "piperazine-N,N'-2-ethanesulfonic acid" on page 13, line 8; page 13, line 17-18 and page 16, line 22 has been replaced with piperazine-N,N'-bis(2-ethanesulfonic acid). The amended name is in accord with the acronym "PIPES", which is recited on page 16, line 22. Support for the amended name may be found at page 1699 of the Sigma[®] catalog, 2002-2003 edition (attached hereto).

The name "N-tris-(hydroxymethyl)-2-ethanesulfonic acid" on page 13, lines 12-13 and page 20, line 14-15 has been replaced with N-[tris(hydroxymethyl)methyl]-2-aminoethanesulfonic acid. The amended name is in accord with the acronym "TES" on page 20, line 15. Support for the amended name may be found at page 2008 of the Sigma[®] catalog, 2002-2003 edition (attached hereto).